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SCHLIENTZ, NATHAN W	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/731,256	MACDONALD ET AL.	
	Examiner	Art Unit	
	Nathan W. Schlientz	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28,30,31,33-35,37,38,40,42-44,46 and 62-67* is/are pending in the application.

4a) Of the above claim(s) *66 and 67* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28,30,31,33-35,37,38,40,42-44,46 and 62-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election of Species

Upon receipt of the amendment to the claims filed 17 March 2008, an election of species requirement has been deemed necessary. Since 37 CFR 1.142(a) provides that restriction is proper at any stage of prosecution up to final action, a second requirement may be made when it becomes proper, even though there was a prior requirement with which applicant complied. See MPEP 811.

This application contains claims directed to the following patentably distinct species tetracycline, baicalin hydrate, baicalein, daunorubicin, salicylanilide, salacetamide, salsalate, and albofungin. The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 65-67 are generic.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would

not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election of the species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

Election by Telephone

During a telephone conversation with attorney Jason Johnson on 11 August 2008 a provisional election was made without traverse to prosecute the invention wherein the functional compound includes tetracycline, as exemplified in claim 65. Affirmation of this election must be made by applicant in replying to this Office action. Claims 66 and 67 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Status of Claims

Claims 36, 39, 41, 45, 47, 49, 50 and 52-61 have been cancelled, claims 28, 37, 38, 42-44 and 46 have been amended; and claims 62-67 have been newly added in an amendment filed 17 March 2008. Claims 66 and 67 are withdrawn from further consideration as being drawn to a nonelected species. As a result, claims 28, 30, 31, 33-35, 37, 38, 40, 42-44, 46 and 62-65 are pending and examined herein on the merits for patentability.

Withdrawn Rejections

Rejections and/or objections not reiterated from the previous Office Action are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 62 and 63 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically, claim 62 states that the pH altering material includes an acid; and claim 63 states that the pH altering material includes a base. However, the instant specification merely states on page 16, lines 4-11:

> "It should be noted that such triggering of the delivery system may be accomplished through... the intentional act of introducing chemistries such as pH altering materials to the delivery systems to trigger the release of functional compounds. Chemistries that may be introduced to a delivery system include bicarbonates, carbonates and buffering salts which would result in a pH change on becoming wet with water or biological fluid."

Therefore, the instant specification does not provide support for the pH altering material including an acid or a base, but only provides support for the pH altering material including carbonates, bicarbonates and buffering salts which would result in a pH change on becoming wet with water or biological fluid.

The specification was searched for support for the newly added limitations. In the event that the examiner has overlooked support for the above mentioned limitations, Applicants are invited to direct the examiner to the page and line wherein support is provided.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1,148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 28, 30, 31, 33-35, 37, 38, 40, 42-44, 46, 64 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bosch et al. (WO 03/032959) in view of

Breitbarth (US 5,597,575) and Ma et al. (Fundamentals of Adsorption, 1992), as evidenced by Daraio et al. (Helvetica Chimica Acta, 2001).

Applicant claims:

Applicants claim a method of utilizing a triggerably releasable delivery system comprising administering to the mucosal membrane alumina coated silica nanoparticles with a functional compound bound to the surface, wherein a change in pH releases the functional compound.

Determination of the scope and content of the prior art

(MPEP 2141.01)

Bosch et al. teach compositions comprising at least one type of inorganic core having absorbed or bound to the surface thereof at least one type of active molecule (Abstract; pg. 1, ll. 3-4; pg. 5, ll. 15-27; and pg. 9, ll. 4-7). Bosch et al. teach that the inorganic core may have a particle size wherein 50%, 60%, 70%, 80% or 90% of the particles are less than about 1 μm, less than about 800 nm, less than about 700 nm, less than about 600 nm, less than about 500 nm, less than about 400 nm, less than about 300 nm, less than about 200 nm, less than about 100 nm, less than about 75 nm, less than about 500 nm, less than about 25 nm, less than about 15 nm, less than about 10 nm, or less than about 50 nm (pg. 10, ll. 15-26), wherein exemplary cores, suitable for pharmaceutical and other uses, are nanoparticulate silica, alumina, and hematite (pg. 10, ll. 1-2). Bosch et al. also teach that the active agent may be useful in mucosal applications, wherein exemplary active agents include dental applications, such as oral nanoparticulate lidocain formulations and nanoparticulate fluoride treatments,

application to the lungs, throat, gastrointestinal (GI) tract, application to wounds, etc. (pg. 14, ll. 12-20). Bosch et al. teach that pharmaceutical therapeutic methodologies for mucosal applications include colonic, oral, rectal, intravaginal, injectable (e.g., intravenous or subcutaneous), pulmonary, nasal, buccal, topical, local, intracisternal, intraperitoneal, ocular, aural, transdermal, buccal spray, or nasal spray administration (pg. 14, ll. 21-24; and pg. 22, ll. 11-15). Bosch et al. also teach that pharmaceutical compositions according to their invention may also comprise one or more binding agents, filling agents, lubricating agents, suspending agents, sweeteners, flavoring agents, preservatives (i.e., methylparaben, propylparaben, butylparaben, ethyl alcohol, benzyl alcohol, and benzalkonium chloride), buffers, wetting agents, disintegrants, effervescent agents, and other excipients (pg. 20, ll. 8-11). Bosch et al. also teach that the composition can be in the form of a solution, suspension, syrup or elixir or as formulated for solid dose administration (pg. 24, ll. 3-5).

Bosch et al. further teach specific examples wherein Nalco alumina particles with a particle size of 8 nm have naproxen or ketoprofen bound to the surface, as determined by attenuated total reflection infrared spectroscopy (ATR-FTIR), electrokinetic measurements and thermogravimetric analysis (TGA) (Examples 1-3). Nalco 1056 are positively charged alumina coated silica nanoparticles, as evidenced by Daraio et al. (pg. 2603, Experimental).

Bosch et al. also show that the zeta potential of alumina, silica, and alumina coated silica particles are a function of pH and drug concentration and are capable of being above 40 mV (Figures 1, 2, 11, 12 and 18).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Bosch et al. do not teach the active molecule is released from the nanoparticle upon administration to a mucosal membrane as a result of a change in the pH. However, Breitbarth teaches that topical application for administering drugs and even controlled release of drugs is now used extensively (col. 3, ll. 32-34). Breitbarth teaches that it is readily known to adsorb active agents to silica, alumina, or coated silica particles, wherein the active agent can readily and controllably be released from the particles by a small pH change (col. 5, ll. 11-18). Also, Ma et al. clearly teach that the adsorption of tetracycline on the surface of alumina membranes is pH dependent, wherein a change in pH of either acidic or basic change results in the release of tetracycline (Abstract; Introduction 2nd paragraph; Results and Discussion 1st paragraph; Figures 1 and 2; and Table 1).

Finding of *prima facie* obviousness

Rational and Motivation (MPEP 2142-43)

Therefore, it would have been *prima facie* obvious for one skilled in the art at the time of the invention to apply the alumina coated silica nanoparticles with active agents adsorbed thereon to mucosal membranes, as taught by Bosch et al., with the expectation that a small change in pH will readily and controllably release the active agent from the surface of the nanoparticles, as reasonably taught by Breitbarth and Ma et al.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

2. Claims 28, 30, 31, 33-35, 37, 38, 40, 42-44, 46, 64 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bosch et al. (WO 03/032959) in view of Breitbarth (US 5,597,575) and Ma et al. (Fundamentals of Adsorption, 1992), as evidenced by Daraio et al. (Helvetica Chimica Acta, 2001).

Applicant claims:

Applicants claim a method of utilizing a triggerably releasable delivery system comprising administering to the mucosal membrane alumina coated silica nanoparticles with a functional compound bound to the surface, wherein a change in pH releases the functional compound.

Determination of the scope and content of the prior art

(MPEP 2141.01)

Bosch et al. teach compositions comprising at least one type of inorganic core having absorbed or bound to the surface thereof at least one type of active molecule (Abstract; pg. 1, ll. 3-4; pg. 5, ll. 15-27; and pg. 9, ll. 4-7). Bosch et al. teach that the inorganic core may have a particle size wherein 50%, 60%, 70%, 80% or 90% of the particles are less than about 1 μm, less than about 800 nm, less than about 700 nm,

less than about 600 nm, less than about 500 nm, less than about 400 nm, less than about 300 nm, less than about 200 nm, less than about 100 nm, less than about 75 nm, less than about 500 nm, less than about 25 nm, less than about 15 nm, less than about 10 nm, or less than about 50 nm (pg. 10, ll. 15-26), wherein exemplary cores, suitable for pharmaceutical and other uses, are nanoparticulate silica, alumina, and hematite (pg. 10, ll. 1-2). Bosch et al. also teach that the active agent may be useful in mucosal applications, wherein exemplary active agents include dental applications, such as oral nanoparticulate lidocain formulations and nanoparticulate fluoride treatments, application to the lungs, throat, gastrointestinal (GI) tract, application to wounds, etc. (pg. 14, ll. 12-20). Bosch et al. teach that pharmaceutical therapeutic methodologies for mucosal applications include colonic, oral, rectal, intravaginal, injectable (e.g., intravenous or subcutaneous), pulmonary, nasal, buccal, topical, local, intracisternal, intraperitoneal, ocular, aural, transdermal, buccal spray, or nasal spray administration (pg. 14, ll. 21-24; and pg. 22, ll. 11-15). Bosch et al. also teach that pharmaceutical compositions according to their invention may also comprise one or more binding agents, filling agents, lubricating agents, suspending agents, sweeteners, flavoring agents, preservatives (i.e., methylparaben, propylparaben, butylparaben, ethyl alcohol, benzyl alcohol, and benzalkonium chloride), buffers, wetting agents, disintegrants, effervescent agents, and other excipients (pg. 20, ll. 8-11). Bosch et al. also teach that the composition can be in the form of a solution, suspension, syrup or elixir or as formulated for solid dose administration (pg. 24, ll. 3-5).

Bosch et al. further teach specific examples wherein Nalco alumina particles with a particle size of 8 nm have naproxen or ketoprofen bound to the surface, as determined by attenuated total reflection infrared spectroscopy (ATR-FTIR), electrokinetic measurements and thermogravimetric analysis (TGA) (Examples 1-3). Nalco 1056 are positively charged alumina coated silica nanoparticles, as evidenced by Daraio et al. (pg. 2603, Experimental).

Bosch et al. also show that the zeta potential of alumina, silica, and alumina coated silica particles are a function of pH and drug concentration and are capable of being above 40 mV (Figures 1, 2, 11, 12 and 18).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Bosch et al. do not teach the active molecule is released from the nanoparticle upon administration to a mucosal membrane as a result of a change in the pH. However, Breitbarth teaches that topical application for administering drugs and even controlled release of drugs is now used extensively (col. 3, ll. 32-34). Breitbarth teaches that it is readily known to adsorb active agents to silica, alumina, or coated silica particles, wherein the active agent can readily and controllably be released from the particles by a small pH change (col. 5, ll. 11-18). Also, Ma et al. clearly teach that the adsorption of tetracycline on the surface of alumina membranes is pH dependent, wherein a change in pH of either acidic or basic change results in the release of tetracycline (Abstract; Introduction 2nd paragraph; Results and Discussion 1st paragraph; Figures 1 and 2; and Table 1).

Finding of *prima facie* obviousness

Rational and Motivation (MPEP 2142-43)

Therefore, it would have been *prima facie* obvious for one skilled in the art at the time of the invention to apply the alumina coated silica nanoparticles with active agents adsorbed thereon to mucosal membranes, as taught by Bosch et al., with the expectation that a small change in pH will readily and controllably release the active agent from the surface of the nanoparticles, as reasonably taught by Breitbarth and Ma et al.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

3. Claims 28, 30, 31, 33-35, 37, 38, 40, 42-44, 46, 64 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tan et al. (US 6,548,264) in view of Bosch et al. (WO 03/032959), Breitbarth (US 5,597,575) and Ma et al. (Fundamentals of Adsorption, 1992), as evidenced by Daraio et al. (Helvetica Chimica Acta, 2001).

Applicant's claims

Applicants claim a method comprising administering to a patient a plurality of nanoparticles containing silica coated with alumina that are about 500 nm or less, wherein the alumina provides a site on a surface to which is bonded a functional

compound that is released in response to exposure to an environmental or chemical condition, and the nanoparticles possess a zeta potential of about 20 mV or more.

Determination of the scope and content of the prior art

(MPEP 2141.01)

Tan et al. teach silica-coated nanoparticles, wherein the nanoparticles comprise a core coated with a shell, such as mixtures or layers of silica and alumina, and derivatized with functional groups on the surface thereof, which can be used as drug molecule particles (Figure 1; column 2, lines 9-14 and 24-25; column 5, lines 55-60 and 67; column 6, lines 1-4 and 36-44; and column 11, line 62 through column 12, line 1). Tan et al. further teach that the nanoparticles are preferably between about 10 nm to about 300 nm (column 4, lines 26-35), and can be dispersed in a pharmaceutically acceptable carrier and administered to a patient (column 12, lines 1-4). Also, Tan et al. teach that drugs coated onto the nanoparticles can be further contained within a time-release coating (i.e. biodegradable sugar) so that the drug can accumulate at the site before becoming active (column 12, lines 7-10).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Tan et al. do not explicitly teach nanoparticles containing silica coated with alumina wherein the nanoparticles are administered to a mucosal membrane of a patient. However, Tan et al. do teach that the nanoparticles comprise a shell that can be composed of an inorganic oxide such as alumina or silica, or mixtures of the foregoing, and the shell can include a first layer of silica coating and immediately

adjacent to the core, and a second layer coating the silica layer (column 5, lines 55-60 and 67; and column 6, lines 1-4). Also, Bosch et al. teach compositions comprising at least one type of inorganic core having absorbed or bound to the surface thereof at least one type of active molecule (Abstract; pg. 1, ll. 3-4; pg. 5, ll. 15-27; and pg. 9, ll. 4-7), wherein exemplary cores, suitable for pharmaceutical and other uses, are nanoparticulate silica, alumina, and hematite (pg. 10, ll. 1-2). Bosch et al. also teach that the active agent may be useful in mucosal applications (pg. 14, ll. 12-20) and that pharmaceutical therapeutic methodologies for mucosal applications include colonic, oral, rectal, intravaginal, injectable (e.g., intravenous or subcutaneous), pulmonary, nasal, buccal, topical, local, intracisternal, intraperitoneal, ocular, aural, transdermal, buccal spray, or nasal spray administration (pg. 14, ll. 21-24; and pg. 22, ll. 11-15). Specific nanoparticles taught by Bosch et al. include Ludox CL and Nalco alumina particles (Examples 1-3).

Tan et al. also do not teach the functional compounds are released from the nanoparticles as a result in a change in pH. However, Breitbarth teaches that topical application for administering drugs and even controlled release of drugs is now used extensively (col. 3, ll. 32-34). Breitbarth teaches that it is readily known to adsorb active agents to silica, alumina, or coated silica particles, wherein the active agent can readily and controllably be released from the particles by a small pH change (col. 5, ll. 11-18). Also, Ma et al. clearly teach that the adsorption of tetracycline on the surface of alumina membranes is pH dependent, wherein a change in pH of either acidic or basic change

results in the release of the tetracycline (Abstract; Introduction 2nd paragraph; Results and Discussion 1st paragraph; Figures 1 and 2; and Table 1).

With regard to the zeta potential of the nanoparticles of Tan et al., Bosch et al. clearly show that the zeta potential of alumina, silica, and alumina coated silica particles are a function of pH and drug concentration and are capable of being above 40 mV (Figures 1, 2, 11, 12 and 18).

Finding of *prima facie* obviousness

Rational and Motivation (MPEP 2142-43)

Therefore, it would have been *prima facie* obvious for one skilled in the art at the time of the invention to make the nanoparticles of Tan et al. comprising a core coated with a shell that is functionalized with a chemical or biological group and administering the nanoparticles to a patient, wherein the shell comprises silica coated with alumina, as reasonably taught by Tan et al.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Schlientz whose telephone number is 571-272-9924. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NWS

/John Pak/
Primary Examiner, Art Unit 1616